

# **METHOD AND APPARATUS FOR DISCOVERING REMOTE NODES IN AN ETHERNET PASSIVE OPTICAL NETWORK**

## **ABSTRACT**

One embodiment of the present invention provides a system that facilitates discovery of remote nodes in EPONs. The system includes a central node and at least one remote node. During operation, the system first receives a solicitation message from the central node, wherein the solicitation message includes a time stamp indicating the solicitation message's transmission time and assigns a starting time and size for a discovery slot in which the remote node is allowed to transmit a response message to the central node for registration. The system then sets a local time at the remote node according to the received time stamp. After a random delay starting from the beginning of the assigned discovery slot, the system transmits the response message to the central node during the discovery slot with a response transmission probability that is less than or equal to one.